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13 December 1954

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MEMORANDUM FOR: THE RECORD

SUBJECT : Project Monitor on P-101B, Commo
System, Infrared

1. Time and Place of Meeting:

The meeting was held 7, 8, and 9 December at

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2. Attendance:

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3. Purpose of Meeting:

The purpose of the meeting was to review the past months progress and to assist the present work as much as possible.

4. Discussion:

a. Overtime Pay:

The question of overtime pay, brought up during the November meeting, was discussed with the management. A letter to the Contracting Officer was written and hand-carried to requesting such overtime. All overtime hours for the I. R. lab will be paid at the regular rate; premium pay being given only to model shop employees.

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b. Field Test:

On the evening of the 8th of December a field test of the first breadboard units with new amplifiers was held in treeless rolling country.

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During the test it was snowing and the visibility was poor, perhaps 1-1/2 to 2 miles for house lights. The equipment was operated at 2 miles range. The search-find tone came in very clearly. The voice quality was very poor, however, and the signal was unintelligible. It was apparent that there were many bugs in the equipment:

- (1) One of the galvanometers had been damaged.
- (2) The high frequency response of the amplifiers was absent.
- (3) The optical systems were not completely aligned.

The I. R. viewer using the RCA equivalent of the IC 16 tube was reasonably sensitive at 2 miles in the snow, but the image was both fuzzy and distorted.

c. Design and Packaging Discussion:

(1) Battery Charger:

A circuit has been evolved which maintains the proper cutoff level on the Silver cells to better than 0.1 volt with input voltages from 90-130 volts, 50-60 cycles (input can be manually switched from 110 volts nominal to 220 volts nominal by changing a link connection).

(2) Tripod:

[] had tentatively built a simple tripod using three 2 foot legs with the cover of the unit as a table. The legs were half 1/4" diameter aluminum tubing and half 1/2" diameter tubing so arranged that one half fit inside the other for storage. Pipe threads were used to connect the leg halves together and to the table top.

It was found that the rotational stability of this was poor. Operation of the search-find mechanism caused large angular deflections and backlash in the tripod.

The tripod was redesigned using six leg pieces so arranged that each tripod leg is a triangle (two leg pieces joined at the ground and the table as the third side of the triangle). The three tripod legs form two additional triangles, one at the table and another at the ground level. The resulting structure is light, rigid, and strong and has no noticeable rotational deflection.

(3) Sweep

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(3) Sweep-Find Mechanism:

Several small suggestions were made regarding improvements in the mechanism. It is believed that a satisfactory design is in hand.

(4) I. R. Viewer:

A breadboard viewer has been built and performs satisfactorily except that the distance of sharpest focus is too short as mentioned under Field Test.

(5) Overall Package:

The overall package design is similar to that mentioned in the previous memorandum. The present external dimensions are 5" x 12" x 15".

5. Actions:

a. APD will expedite the approval of overtime pay by the Contracting Officer.

b. [] will continue work on the optics, modulation system, and package design. The first unit shall be completed by 4 January 1955.

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TSS/APD

Distribution:

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